ABSTRACT

An integrated circuit regulates current flowing from a battery to a load without requiring an external current sense resistor. The IC includes a primary charge pump; a model charge pump; a current sense circuit, a first control circuit to force a voltage level at the output of the model charge pump to be equal to a voltage level at the output of the primary charge pump; and, a second control circuit to force a model current put out by the model charge pump to be equal to a reference current. Current passing through the primary charge pump is regulated at a level established by the capacitance value of an external flying capacitor irrespective of input voltage variation of the battery power source.